4.2 S-10186 EAST AIRSTRIP LANDFILL

4.2.1 Location and Site Description

The East Airstrip Landfill is located on the south side the eastern end of the airstrip (Figure 5). This site covers approximately 7,500 m², and contains a drainage channel network that collects most of the surface water from the landfill (Photographs 3 and 4, Appendix A). The existing drainage channel network is active during the spring snowmelt and leads towards Slidre Fiord, situated approximately 230 m south of the site.

The East Airstrip Landfill has been in operation since the foundation of the AES Weather Station, and is still active. This landfill contains both hazardous and non-hazardous materials. Some of the landfill content, including partly filled barrels, has become exposed due to erosion.

The topography of the site is level, with a strong slope on the southeast near the fiord shoreline. The soil is clayey silt with a few small scattered stones.

4.2.2 Summary of Previous BRI Investigations

In 2006/07, two soil samples were collected at the end of the drainage channel and were analyzed for metals, TPH and BTEX. In both samples, the metal concentrations were below the CCME guidelines. TPH Fraction 3 was detected at concentrations below the CCME guideline. No BTEX was detected in the samples.

4.2.3 Nature and Extent of Contamination

During the 2007/08 campaign, six soil samples were collected. Four samples were collected in the main drainage pathway between the East Airstrip Landfill and Slidre Fiord and 2 samples were collected in the area surrounding the landfill. All samples were tested for TPH and BTEX and 4 samples were tested for heavy metals (Table 6). Metals, TPH Fractions 1 to 4 and BTEX were not detected above CCME guidelines.

Based on the FCSAP classification system, the East Airstrip Landfill is in Class N site (34.0). The results indicate that no significant human health threat or environmental impact exists from this site and action is not likely required.

4.2.4 Recommendations

The landfill is currently active and regularly receives material. All of the samples collected adjacent to, and downgradient from, the landfill were below guidelines for all measured parameters.

The landfill is active and as such cannot be closed. The areas immediately adjacent to and downgradient from the landfill should be regularly sampled (eg. every 2 years) to verify that leachable material is not migrating from the landfill. In particular, the drainage channels originating from the landfill and adjacent areas should be sampled regularly.

Table 6. (S-10186) East Airstrip Landfill 2007/08 results.

					East Airstrip Landfill (S-10186)					
		SOIL			SOIL					
	PARAMETERS	UNITS	INDUSTRIAL GUIDELINES (Coarse)	DETECTION LIMIT	07EL0164 Drain. Sed. 0-10 cm 7/30/2007	07EL0165 Drain. Sed. 0-10 cm 7/30/2007	07EL0166 Drain. Sed. 0-10 cm 7/30/2007	07EL0167 Drain. Sed. 0-10 cm 7/30/2007	07EL0168 0-10 cm 7/30/2007	07EL0169 0-10 cm 7/30/2007
METALS	Arsenic (As)	mg/kg	12	0.27	NA	NA	NA	7.3	9.7	8.8
	Barium (Ba)	mg/kg	2,000	5	NA	NA	NA	61	115	130
	Cadmium (Cd)	mg/kg	22	0.22	NA	NA	NA	<0.9	<0.9	<0.9
	Chromium (Cr)	mg/kg	87	3	NA	NA	NA	17	19	28
	Cobalt (Co)	mg/kg	300	1.9	NA	NA	NA	9	12	15
	Copper (Cu)	mg/kg	91	2.1	NA	NA	NA	19	24	32
	Lead (Pb)	mg/kg	600	1.2	NA	NA	<10	11	22	88
	Manganese (Mn)	mg/kg	---	1.1	NA	NA	117	268	366	437
	Molybdenum (Mo)	mg/kg	40	1.4	NA	NA	<2	<2	<2	<2
	Nickel (Ni)	mg/kg	50	0.6	NA	NA	6	19	23	31
	Selenium (Se)	mg/kg	3.9	0.5	NA	NA	<0.5	<0.5	0.6	0.9
	Silver (Ag)	mg/kg	40	0.4	NA	NA	<0.5	<0.5	<0.5	<0.5
	Tin (Sn)	mg/kg	300	0.8	NA	NA	<5	<5	<5	<5
	Zinc (Zn)	mg/kg	360	2.5	NA	NA	20	57	86	107
TPH	F1 (C6-C10)	mg/kg	310	10	<4.1	5.2	<3.3	<3.9	4.1	<4.2
	F2 (C10-C16)	mg/kg	760	10	<2	31.8	<2.2	<2.2	31.4	31.9
	F3 (C16-C34)	mg/kg	1,700	10	149	403	45	163	<4.3	208
	F4 (C34-C50)	mg/kg	3,300	10	37	86	16	37	136	44

NA Not available

Higher than the criteria

CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT (CCME)

SOIL Following the Canadian Soil Quality Guidelines for the Protection of Human and/or Environmental Health in Industrial land uses, of the CCME. (2006)

F1-F4 Following the Technical Supplement of the Petroleum Hydrocarbons (PHCs) in soil (Industrial/Eco Soil Contact), endorsed by the CCME. (January 2001)

DRAINAGE SED. = Sediments collected in a dry or temporary drainage, considered like a soil.

Figure 5. (S-10186) Eureka East Airstrip Landfill map.

4.3 S-10187 SEWAGE LAGOON

4.3.1 Location and Site Description

The Sewage Lagoon is located east of the AES Weather Station on the shore of Slidre Fiord (Figure 6). The lagoon is approximately 75 m x 14 m and is surrounded by a 3 m wide berm (Photograph 5, Appendix A). The topography of the site slopes gently to the south toward the fiord.

The Sewage Lagoon receives raw sewage directly from AES via above ground pipes (Photograph 7, Appendix A). The sewage from CFS-Eureka is pumped from main station storage tanks and trucked to the lagoon daily.

The lagoon water is pumped directly into Slidre Fiord once a year when it has reached full capacity, usually in July (Photograph 6, Appendix A). Currently, no sampling of the lagoon water is performed before it is released into the ford. A previous environmental audit performed by Work and Government Services Canada (PWGSC, 1998) of the site reported that since the ice-free period of the lagoon is relatively short, there was insufficient time for both complete microbial degradation of the organic material and sedimentation of the suspended solids.

4.3.2 Summary of Previous BRI Investigations

In 2006/07, a total of seven samples were collected, including 4 sediment samples, 1 soil sample and 2 surface water samples. The sediment and soil samples were tested for metals, TPH, BTEX, nitrates and nitrites, orthophosphates and PCBs, and the water samples were analyzed for metals, nitrites-nitrates and orthophosphate. Arsenic, copper and zinc concentrations above the CCME guidelines were detected in 3, 4 and 2 sediment samples, respectively (Table 7). No BTEX, nitrates, nitrites, orthophosphates or PCBs were detected above the CCME guidelines in the soil and sediment samples.

Copper, lead, selenium and zinc above the CCME guidelines were measured in both water samples, and arsenic, cadmium, chromium, cobalt and nickel concentrations above the CCME guidelines were also measured in 1 water sample.

Table 7. (S-10187) Previous contaminated sediment samples.

Sample Name	Sample Type	Depth (cm)	Contaminant	Guideline (mg/kg)	Concentration (mg/kg)
06SW0136	SOIL	0	ARSENIC (AS)	5.9	20.3
	SOIL	0	COPPER (CU)	35.7	82
	SOIL	0	ZINC (ZN)	123	126
06SW0137	SOIL	0	COPPER (CU)	35.7	303
	SOIL	0	ZINC (ZN)	123	237
06SW0138	SOIL	0	ARSENIC (AS)	5.9	13.8
	SOIL	0	COPPER (CU)	35.7	39
06SW0139	SOIL	0	ARSENIC (AS)	5.9	24
	SOIL	0	COPPER (CU)	35.7	48
06SW0141	WATER	SURFACE	COPPER (CU)	2-4	44
	WATER	SURFACE	LEAD (PB)	1-7	1
	WATER	SURFACE	SELENIUM (SE)	1	1
	WATER	SURFACE	ZINC (ZN)	30	90
06SW0142	WATER	SURFACE	ARSENIC (AS)	5	41
	WATER	SURFACE	CADMIUM (CD)	0.017	2
	WATER	SURFACE	CHROMIUM (CR)	10	68
	WATER	SURFACE	COBALT (CO)	50	185
	WATER	SURFACE	COPPER (CU)	2-4	381
	WATER	SURFACE	LEAD (PB)	1-7	182
	WATER	SURFACE	NICKEL (NI)	25-150	418
	WATER	SURFACE	SELENIUM (SE)	1	1
	WATER	SURFACE	ZINC (ZN)	30	1,060

4.3.3 Nature and Extent of Contamination

In 2007/08, 9 soil, 3 sediment, and 1 surface water samples were collected in and around the Sewage Lagoon site (Photograph 8, Appendix A). The soil samples were tested for metals and TPH concentration. The water and sediment samples were tested for metals, TPH, BTEX, nitrates, nitrites and total phosphorus (Table 8). Three soil samples contained arsenic concentrations slightly higher than the CCME guideline. One of these samples also had copper concentrations above the CCME guideline. No TPH above the CCME guidelines was measured in the soil samples.

Several sediment samples contained concentrations of arsenic, copper and zinc that exceeded the CCME criteria. These samples did not demonstrate TPH, BTEX, nitrates, nitrites or total phosphorus concentrations above the applicable guidelines. The single water sample contained copper, lead, selenium and zinc at concentrations above the CCME guidelines. Chromium and copper concentrations exceeded the CCME discharge criteria. TPH Fractions 2 and 3 were detected at elevated concentrations in the water sample, while Fractions 1 and 4 were detected at low concentrations. There are currently no guidelines regarding TPH contamination in water.

The Sewage Lagoon is a Class 1 site (83.7) according to the FCSAP classification system. The extent of possible contamination (volume of lagoon) has been estimated at 1,600 m^3. Action is required to address the current contamination.

4.3.4 Recommendations

Water from the Sewage Lagoon was found to have concentrations of copper, lead, selenium and zinc above criteria (2180, 9, 5 and 320 mg/kg, respectively). When discharge criteria were examined, chromium (20mg/L) and copper (2180 mg/L) exceed the guidelines (10 and 200 mg/L, respectively). A total of 9 soil samples were collected from around the lagoon. Three samples were slightly above guideline for arsenic (13.4, 14.8 and 12.5 mg/kg) and 1 sample was above criteria for copper (99 mg/kg). All other samples were below criteria for all measured

parameters. Three sediment samples taken from within the lagoon were above guidelines for arsenic (16.2 and 6.1 mg/kg) and copper (121 mg/kg).

Replacement of the sewage lagoon with a permanent treatment system should be considered. Until a permanent sewage treatment system is functioning, regular sampling should be performed to monitor the accumulation of heavy metals. As well, a program of regular sediment removal from the lagoon followed by proper interment into a contained landfill should be developed to mitigate the accumulation of high concentrations of heavy metals within the lagoon sediments.

						Sewage Lagoon (S-10187)			
						WATER	SEDIMENT		
	SEDIMENT					07SW0005-W	07SW0002	07SW0004	07SW0149
UNITS	GUIDELINES FRESH W. AQUATIC LIFE		GUIDELINES MARINE W. AQUATIC LIFE		DETECTION LIMIT	Surface Fresh water	Marine water 0-10 cm	Fresh Water 0-10 cm	Marine Water 0-10 cm
	(1) ISQG	(2) PEL	(1) ISQG	(2) PEL		7/26/2007	7/26/2007	7/26/2007	7/29/2007
mg/kg	5.9	17	7.24	41.6	0.27	2	16.2	7.3	6.1
mg/kg	---	---	---	---	5	60	16	84	10
mg/kg	0.6	3.5	0.7	4.2	0.22	<1	<0.9	<0.9	<0.9
mg/kg	37.3	90	52.3	160	3	20	7	22	5
mg/kg	---	---	---	---	1.9	2	9	10	5
mg/kg	35.7	197	18.7	108	2.1	2,180	4	121	7
mg/kg	35	91.3	30.2	112	1.2	9	<10	14	<10
mg/kg	---	---	---	---	1.1	649	465	374	247
mg/kg	---	---	---	---	1.4	6	2	<2	<2
mg/kg	---	---	---	---	0.6	12	18	22	10
mg/kg	---	---	---	---	0.5	5	0.8	0.9	<0.5
mg/kg	---	---	---	---	0.4	<1.3	<0.5	<0.5	<0.5
mg/kg	---	---	---	---	0.8	22	<5	29	<5
mg/kg	123	315	124	271	2.5	320	44	145	27
mg/kg	---	---	---	---	10	70	<3.6	6.4	<3.4
mg/kg	---	---	---	---	10	983	11	24.1	4.5
mg/kg	---	---	---	---	10	2,410	21	323	20
mg/kg	---	---	---	---	10	160	5.2	81.5	5.6
						2			
mg/kg	---	---	---	---	155	9.86	NA	NA	NA
mg/kg	---	---	---	---	2	0.08	NA	NA	NA
mg/kg	---	---	---	---		<0.02	NA	NA	NA

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ideline (ISQG) of the Canadian Sediment Quality Guidelines for the Protection of Aquatic Life of the CCME. (2002)

adian Sediment Guidelines for the Protection of Aquatic Life of the CCME. (2002)

otection of Aquatic Life in Fresh Water, of the CCME. (2006)

Sewage Lagoon (S-10187)								
SOIL								
1	07SW0149 0-10 cm 7/29/2007	07SW0150 >45 cm 7/29/2007	07SW0170 60 cm 7/29/2007	07SW0171 85 cm 7/29/2007	07SW0172 85 cm 7/29/2007	07SW0173 85 cm 7/29/2007	07SW0174 85 cm 7/29/2007	07SW0175 60 cm Dup. 170 7/29/2007
	NA	4.3	10.7	11.6	13.4	14.8	12.5	10.1
	NA	20	39	26	13	10	56	30
	NA	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
	NA	5	11	12	5	3	18	14
	NA	4	8	7	6	3	9	8
	NA	8	14	21	99	6	20	16
	NA	<10	<10	<10	<10	<10	14	<10
	NA	133	194	300	246	147	208	394
	NA	<2	<2	<2	<2	<2	<2	<2
	NA	9	19	20	12	6	20	20
	NA	<0.5	0.7	0.5	<0.5	<0.5	1	0.7
	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	NA	<5	<5	<5	<5	<5	<5	<5
	NA	32	49	50	34	18	69	53
	<3.4	<3.9	NA	<3.3	<3.1	<3.7	<4.1	<3.9
	4.5	<1.4	11	8.8	7.4	6.9	3.1	<2.3
	20	44.9	72.3	23	60.7	18	120	62.7
	5.6	12	30	11	27	7.3	25	15

, of Human and/or Environmental Health in Industrial land uses, of the CCME. (2006)

Figure 6. (S-10187) Eureka Sewage Lagoon map.

4.4 S-10190 MAIN CAMP "THE FORT"

4.4.1 Location and Site Description

The CFS-Eureka Main Camp area, known as "The Fort", is located on the southwest side of the airstrip, and includes the Old Camp, the New Accommodations Building, the Old Grey Water Lagoon, the New Warehouse Building area and the Polar Continent Shelf Project (PCSP) facility (Figure 7).

In 1998, a New Accommodations Building was constructed to replace "The Fort" (Photograph 9, Appendix A), which contains dormitory style rooms, a kitchen, a dinning room, a recreation room, a bar, administrative offices and a medical examination room. This building houses military personnel and transient pilots. The Old Camp was demolished in 2006 and the area is currently used as a vehicle parking area. The Old Camp used aboveground fuel day storage tanks that were located around the building and supplied the heating system. The fuel contamination found at the Old Camp area was due to leaks in the tanks and spills which occurred during routine re-filling.

The topography of the site is level. The drainage pathways found around the Main Camp lead surface water south towards Slidre Fiord down a gentle slope. The fiord is located approximately 950 m downgradient from the Main Camp area. The soil in the Main Camp is mainly native clay and silt, and the Old Camp area was covered with gravel after demolition.

4.4.2 Summary of Previous BRI Investigations

"The Fort":

In 2006/07, 2 subsurface soil samples were collected in 2 trenches and analyzed for TPH and BTEX (Table 9). Sample 06MC0101 had concentrations of TPH Fractions 1 and 2 and ethylbenzene that exceeded the CCME guidelines. No TPH or BTEX was detected in the other sample.

All other areas of the Main Camp were not investigated by the BRI.

Table 9. (S-10190) Previous contaminated soil samples.

Sample Name	Sample Type	Depth (cm)	Contaminant	Guideline (mg/kg)	Concentration (mg/kg)
06MC0101	SOIL	70	ETHYLBENZENE	0.08	0.9
	SOIL	70	TPH / F1	310	350
	SOIL	70	TPH / F2	760	3,200

4.4.3 Nature and Extent of Contamination

During the 2007/08 sampling campaign, 24 soil samples, including 2 duplicate pairs, were collected from the Old Camp area (Photographs 10 to 12, Appendix A). The samples were tested for TPH and BTEX (Table 10). TPH Fractions 1 and 2 were measured at concentrations above the CCME guidelines in 4 and 8 samples, respectively. Benzene, ethylbenzene, toluene and total xylene concentrations exceeding the CCME guidelines were measured in 1 duplicate pair of samples. In addition, toluene, ethylbenzene and total xylene concentrations above the guidelines were found in 1, 2, and 3 samples, respectively.

Based on the FCSAP classification system, the Main Camp site (Old Camp area) is a Class 2 site (61.8). The estimated volume of contaminated soil is 875 m^3. The results and nature of the site indicates a potential for off-site migration of the petroleum hydrocarbon contamination, and action may be required to prevent and/or reduced spreading of the contamination.

4.4.4 Recommendations

The fuel spills around the Old Camp were delineated during the 2007/08 sampling campaign. The location of the contaminated soil directly in front of the new camp, in a heavily trafficked area, requires that the contaminated soils be treated quickly with minimal disruption to camp activities. The most appropriate approach to treating this site would be the excavation of the contaminated soil followed by immediate backfilling to minimize thawing of the permafrost.

The excavated soil should then be treated *ex situ* using a biopile system combined with nutrient amendments.

Main Camp "The Fort" (S-10190)									
SOIL									
07MC0127 60 cm 7/28/2007	07MC0128 85 cm 7/28/2007	07MC0129 60 cm 7/28/2007	07MC0130 60 cm 7/28/2007	07MC0131 60 cm 7/28/2007	07MC0132 40 cm 7/28/2007	07MC0133 60 cm 7/28/2007	07MC0134 115 cm 7/28/2007	07MC0135 Dup. 134 115 cm 7/28/2007	07MC0136 40 cm 7/28/2007
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	4	1.7	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.9	2.9	3.3
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	20.4	21.3	26.3
393	6.4	3.3	<3.2	116	3.1	70.1	124	314	1340
7,850	7.9	8.9	9.3	491	4.6	364	365	862	12,700
883	91	74.3	80.5	145	23	83	181	195	1,150
62.3	45	34	34	41	11	29	79.4	78	76

SOIL									
07MC0139 Dup. 138 120 cm 7/28/2007	07MC0140 50 cm 7/28/2007	07MC0141 100 cm 28/07/2007	07MC0142 80 cm 28/07/2007	07MC0143 130 cm 28/07/2007	07MC0144 70 cm 28/07/2007	07MC0145 110 cm 28/07/2007	07MC0146 125 cm 28/07/2007	07MC0147 70 cm 28/07/2007	07MC0148 70 cm 7/28/2007
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.9	<0.1
0.3	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	2.4	14	<0.1
67.8	82	3.3	<3.5	<3.1	<3.4	67.3	180	758	<3.9
814	4,550	7.2	11	<1.6	8.5	173	2,310	16,900	<1.7
151	309	108	115	15	122	120	302	1,480	82.3
60	22	51	58	<5.4	31	32	64	36	24

nmental Health in Industrial land uses, of the CCME (2006)

rial/Eco Soil Contact), endorsed by the CCME (January 2001)

Figure 7. (S-10190) Eureka Main Camp "The Fort" map.

4.5 S-10525 BARREL DUMP

4.5.1 Location and Site Description

The Barrel Dump area is located approximately 65 m east of the New Accommodations Building (Figure 8) (Photograph 13, Appendix A). The barrels that were buried in this area contained primarily aviation fuel that was used by the aircraft of DND, the Polar Continental Shelf Project (PCSP), Bradley Air and Kenn Borek Air. Before the barrels were disposed of in the dump, the remaining contents of barrels were burned. The barrels were then crushed and buried under a small amount of fill material. Currently, this Barrel Dump is not active and a new Barrel Dump located approximately 235 m east of the old Barrel Dump is accepting waste barrels.

The topography of the Barrel Dump is level, with a gentle slope towards the south and Slidre Fiord. Several pools of standing water were noted on site in 2007/08, and drainage channels were observed in the old Barrel Dump which leads surface water toward Slidre Fiord approximately 850 m from the site. The soil is composed mainly of clays with pebbles. During the 2007/08 sampling campaign, several barrels were observed on site (Photograph 14, Appendix A).

4.5.2 Summary of Previous BRI Investigations

During the 2006/07 sampling campaign, the only new Barrel Dump was mistakenly investigated so no previous results are available for the old Barrel Dump

4.5.3 Nature and Extent of Contamination

During the 2007/08 sampling campaign, 5 soil samples were collected at the suprapermafrost layer in the downgradient area immediately adjacent to Barrel Dump site, and 1 surface soil sample was collected in a drainage channel. The samples were tested for metals, TPH, BTEX and PAHs (Table 11). None of the samples contained metals, TPH or BTEX contamination above the CCME guidelines.

Based on the FCSAP classification system, the old Barrel Dump is a Class N site (30.8), which indicates that there is no significant environmental impact or human health threat. Action is not indicated.

4.5.4 Recommendations

A series of 5 samples were taken immediately adjacent to the downgradient side of the Barrel Dump. None of the samples possessed TPH contamination above background concentrations indicating that no migration of TPH is occurring from the interred barrels.

The site appears to be stable and no migration of contamination is occurring. As there are no plans to relocate the buried barrels, this site can be closed. A monitoring program consisting of regular sampling (eg. every 3 years) could be considered to address any potential long term concerns.

Table 11. (S-10525) Barrel Dump 2007/08 results.

	PARAMETERS	SOIL			Barrel Dump (S-10525) SOIL					
		UNITS	INDUSTRIAL GUIDELINES (Coarse)	DETECTION LIMIT	07-BC0158 65 cm 7/29/2007	07-BC0159 70 cm 7/29/2007	07-BC0160 70 cm 7/29/2007	07-BC0161 60 cm 7/29/2007	07-BC0162 60 cm 7/29/2007	07-BC0163 Drain. Sed. 0-10 cm 7/29/2007
METALS	Arsenic (As)	mg/kg	12	0.27	7.1	9.3	7.9	8.6	7.8	4.7
	Barium (Ba)	mg/kg	2,000	5	85	126	127	120	108	29
	Cadmium (Cd)	mg/kg	22	0.22	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
	Chromium (Cr)	mg/kg	87	3	17	30	30	27	25	9
	Cobalt (Co)	mg/kg	300	1.9	11	16	17	14	13	5
	Copper (Cu)	mg/kg	91	2.1	20	35	35	32	29	10
	Lead (Pb)	mg/kg	600	1.2	12	15	16	15	14	<10
	Manganese (Mn)	mg/kg	---	1.1	300	409	451	438	389	217
	Molybdenum (Mo)	mg/kg	40	1.4	2	<2	<2	<2	<2	<2
	Nickel (Ni)	mg/kg	50	0.6	21	31	36	30	28	10
	Selenium (Se)	mg/kg	3.9	0.5	1.7	1.3	1	1	1.1	0.8
	Silver (Ag)	mg/kg	40	0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Tin (Sn)	mg/kg	300	0.8	<5	<5	<5	<5	<5	<5
	Zinc (Zn)	mg/kg	360	2.5	71	100	104	96	89	34
TPH	Benzene	mg/kg	0.03	0.02	<0.1	<0.1	<0.1	NA	NA	NA
	Toluene	mg/kg	0.37	0.02	<0.1	<0.1	<0.1	NA	NA	NA
	Ethylbenzene	mg/kg	0.082	0.02	<0.1	<0.1	<0.1	NA	NA	NA
	Total Xylene	mg/kg	11	0.04	<0.1	<0.1	<0.1	NA	NA	NA
	F1 (C6-C10)	mg/kg	310	10	<4.3	<4.4	<4.6	<4.2	<3.5	<3.3
	F2 (C10-C16)	mg/kg	760	10	16	8.3	7.8	8.7	9.1	11
	F3 (C16-C34)	mg/kg	1,700	10	177	160	135	180	98.2	121
	F4 (C34-C50)	mg/kg	3,300	10	66	54	49	63	31	45
PAH	Naphthalene	mg/kg	22	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2-methylnaphthalene	mg/kg	---	0.005	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1-methylnaphthalene	mg/kg	---	0.005	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,3-Dimethylnaphthalene	mg/kg	---	0.005	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	mg/kg	---	0.004	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthene	mg/kg	---	0.004	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,3,5-trimethylnaphthalene	mg/kg	---	0.007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	mg/kg	---	0.007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	mg/kg	50	0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	mg/kg	---	0.004	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	mg/kg	100	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(c)Phenanthrene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)Anthracene	mg/kg	10	0.007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	7,12-dimethylbenz(a)anthracene	mg/kg	---	0.005	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(b,j,k)fluoranthene	mg/kg	10	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.7	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	3-methylcholanthrene	mg/kg	---	0.022	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	10	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenzo(a,h)anthracene	mg/kg	10	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(g,h,i)perylene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenzo (a,l) pyrene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenzo (a,i) pyrene	mg/kg	---	0.007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenzo (a,h) pyrene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

NA Not available

Higher than the criteria

CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT (CCME)

SOIL Following the Canadian Soil Quality Guidelines for the Protection of Human and/or Environmental Health in Industrial land uses, of the CCME. (2006)

F1-F4 Following the Technical Supplement of the Petroleum Hydrocarbons (PHCs) in soil (Industrial/Eco Soil Contact), endorsed by the CCME. (January 2001)

DRAINAGE SED. = Sediments collected in a dry or temporary drainage, considered like a soil.

Figure 8. (S-10525) Eureka Barrel Dump map.

4.6 S-10527 NORTH AIRSTRIP APRON

4.6.1 Location and Site Description

The North Airstrip Apron is located on the northwest side of the airstrip runway (Figure 9). This area contains 4 aboveground diesel fuel storage tanks installed in 1999 to replace 2 diesel fuel bladders of 90,000 L capacity (Photograph 15, Appendix A). The diesel tanks are currently not surrounded by berms. During the 2006/07 and 2007/08 sampling campaigns, 2 fuel bladders were still on-site located adjacent to, and north of the new fuel tanks. A fuel pump and hoses were also present on this site, and several barrels were temporarily stored on the site.

During the 2006/07 campaign, several trenches were noted on site, suggesting that soil samples were recently collected. Also, during this campaign, the bladders appeared to be in active use as transfer hoses were seen to be attached. DND has indicated that the location of the 4 diesel fuel storage tanks is likely to changed in the near future.

The topography of the site is mainly level and the soil is composed of clay and silt. A pool of standing water was noted in 2006/07 and 2007/08, but no drainage pathway was recorded on site. The North Airstrip Apron site is located approximately 1,100 m from Slidre Fiord.

4.6.2 Summary of Previous BRI Investigations

In 2006/07, 10 soil samples, including 1 duplicate pair, were collected at various depths and were analyzed for TPH and BTEX. The samples were collected on the south edge of the site, downgradient from the diesel fuel tanks. Each soil sample contained a variety of petroleum hydrocarbons at concentrations exceeding the applicable CCME guidelines (Table 12). Concentrations of TPH Fractions 1 and 2 above CCME guidelines were detected in 9 and 10 samples, respectively. Significant benzene concentrations, 1,900 times above CCME guidelines, were measured in 1 soil sample. Toluene, ethylbenzene and total xylene concentrations above the CCME guidelines were found in 4, 6, and 6 soil samples, respectively.

Table 12. (S-10527) Previous contaminated soil samples.

Sample Name	Sample Type	Depth (cm)	Contaminant	Guideline (mg/kg)	Concentration (mg/kg)
06NA0115	SOIL	15-20	TOLUENE	0.37	0.40
	SOIL	15-20	ETHYLBENZENE	0.08	0.5
	SOIL	15-20	TOTAL XYLENE	11	18
	SOIL	15-20	TPH / F1	310	1,400
	SOIL	15-20	TPH / F2	760	6,100
06NA0116	SOIL	15-20	ETHYLBENZENE	0.08	1.2
	SOIL	15-20	TOTAL XYLENE	11	20
	SOIL	15-20	TPH / F1	310	2,200
	SOIL	15-20	TPH / F2	760	8,900
06NA0117	SOIL	50	BENZENE	0.03	59
	SOIL	50	TOLUENE	0.37	350
	SOIL	50	ETHYLBENZENE	0.08	91
	SOIL	50	TOTAL XYLENE	11	730
	SOIL	50	TPH / F1	310	9,000
	SOIL	50	TPH / F2	760	9,200
06NA0118	SOIL	15	TPH / F1	310	1,800
	SOIL	15	TPH / F2	760	10,000
06NA0119	SOIL	0-10	ETHYLBENZENE	0.08	1.2
	SOIL	0-10	TOTAL XYLENE	11	20
	SOIL	0-10	TPH / F1	310	680
	SOIL	0-10	TPH / F2	760	2,100
06NA0120	SOIL	0-10	TPH / F2	760	2,300
06NA0122	SOIL	0-10	TPH / F1	310	450
	SOIL	0-10	TPH / F2	760	4,000
06NA0123	SOIL	0-10	TPH / F1	310	480
	SOIL	0-10	TPH / F2	760	2,400
06NA0124	SOIL	40	TOLUENE	0.37	1.5
	SOIL	40	ETHYLBENZENE	0.08	8.7
	SOIL	40	TOTAL XYLENE	11	61
	SOIL	40	TPH / F1	310	2,400
	SOIL	40	TPH / F2	760	6,500

4.6.3 Nature and Extent of Contamination

In 2007/08, 25 subsurface soil samples, including 1 duplicate pair, were collected and analyzed for TPH, BTEX and PAHs (Table 13) (Photographs 16 to 18, Appendix A). TPH Fractions 1, 2 and 3 at concentrations above the CCME guidelines were measured in 12, 11 and 1 soil sample, respectively. Benzene, toluene, ethylbenzene and total xylene concentrations exceeding the CCME guidelines were detected in 5, 3, 10 and 5 soil samples, respectively. PAHs were detected in 10 soil samples, but only naphthalene in one sample was above the CCME guidelines. The results indicated the presence of 2 to 3 hydrocarbon contaminated areas. These areas were located between the 4 diesel fuel storage tanks and the airstrip.

The FCSAP classification based on the above results classifies the North Airstrip Apron as a Class 1 site with a score of 80.5. The estimated volume of contaminated soil is 1,755 m^3. This indicates that action is required to address the contamination on site.

4.6.4 Recommendations

The area surrounding the existing fuel storage tanks and bladders was sampled and TPH contamination was detected in the area between the fuel tanks and the airstrip. The contamination appears to be divided into 2 to 3 areas. The majority of the contamination was TPH Fractions 1 and 2, with several sites having some or all components of BTEX above the CCME guidelines. TPH Fraction 3 and PAH (naphthalene) contamination was detected in 1 sample for each contaminant (2 samples total).

The current location of the fuel storage tanks may change, in which case treatment should be delayed until all modifications at the site are completed. This would enable a single treatment program vs. multiple smaller programs.

Addressing the contamination at this site will require careful coordination as this area is in frequent use by both light (eg. Twin Otter) and heavy (C-130 Hercules) aircraft for refueling. The most appropriate approach is the excavation of the contaminated soil followed by immediate

back-filling to minimize thawing of the permafrost. The excavated soil would then be treated in an *ex situ* biopile with nutrient amendments.

North Airstrip Apron (S-10527)									
SOIL									
07NA0102 90 cm 7/27/2007	07NA0103 30 cm 7/27/2007	07NA0104 90 cm 7/27/2007	07NA0105 90 cm 7/27/2007	07NA0106 Dup 107 70 cm 7/27/2007	07NA0107 70 cm 7/27/2007	07NA0108 60 cm 7/27/2007	07NA0109 110 cm 7/27/2007	07NA0110 105 cm 7/27/2007	07NA0112 110 cm 7/27/2007
2.5	<0.1	<0.1	<0.1	2.5	0.5	<0.1	<0.1	<0.8	<0.1
13.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.8	<0.1
7.7	<0.1	<0.1	<0.1	3.7	2.2	4.6	1.5	7.0	0.2
44.6	0.4	<0.1	<0.1	6.4	4.8	28.9	10.8	72.5	1.5
1,350	361	25	11	542	859	733	258	1,030	654
812	2,700	6.4	5.5	4,190	11,200	7,410	1,590	5,700	6,000
378	249	95	74.9	1,030	3,340	367	212	398	388
74.9	71.4	49	40	79.8	40	42	64.7	70.5	90

SOIL										
07NA0115 90 cm 7/27/2007	07NA0116 90 cm 7/27/2007	07NA0117 90 cm 7/27/2007	07NA0118 65 cm 7/27/2007	B07NA0119 80 cm 27/07/2007	07NA0120 80 cm 7/27/2007	07NA0121 90 cm 7/27/2007	07NA0122 80 cm 7/27/2007	07NA0123 90 cm 7/27/2007	07NA0124 90 cm 7/27/2007	07NA0125 90 cm 7/27/2007
<0.1	<0.1	<0.1	<0.1	<3.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	117	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	0.2	<0.1	<0.1	29	<0.1	<0.1	<0.1	<0.1	1.00	<0.1
8.5	901	4	5.2	<0.1	<3.5	<4.2	<5.2	<3.2	358	<4.3
5.1	5,580	<2.3	2.8	<0.1	2.4	4.2	4.7	<1.9	185	3.1
73.1	338	78.4	101	<0.1	79.7	113	144	107	79.8	124
24	32	25	27	<0.1	26	25	32	29	22	28

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(Industrial/Eco Soil Contact), endorsed by the CCME. (January 2001)

North Airstrip Apron (S-10527)											
SOIL											
1	07NA0102	07NA0103	07NA0104	07NA0105	07NA0106	07NA0107	07NA0108	07NA0109	07NA0110	07NA0112	07NA0113
	90 cm	30 cm	90 cm	90 cm	70 cm dup 107	70 cm	60 cm	110 cm	105 cm	110 cm	90 cm
7	7/27/2007	7/27/2007	7/27/2007	7/27/2007	7/27/2007	7/27/2007	7/27/2007	7/27/2007	7/27/2007	7/27/2007	7/27/2007
	0.2	<0.1	<0.1	<0.1	7.4	12.4	36.5	2.9	17.7	9.3	<0.1
	0.2	<0.1	<0.1	<0.1	30.3	49.2	77.3	4.8	32.9	16	<0.1
	0.1	<0.1	<0.1	<0.1	23.9	33.5	44.4	2.7	19.4	9.7	<0.1
	0.6	<0.1	<0.1	<0.1	32.4	37.8	34.7	2.2	16.6	8.1	<0.1
	<0.1	<0.1	<0.1	<0.1	0.3	0.4	0.4	<0.1	0.2	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	1.1	1.5	1.2	<0.1	0.6	0.3	<0.1
	0.1	<0.1	<0.1	<0.1	5	6.8	3.4	0.1	1	0.5	<0.1
	<0.1	<0.1	<0.1	<0.1	2	2.7	0.7	<0.1	0.5	0.2	<0.1
	<0.1	<0.1	<0.1	<0.1	0.7	1	0.2	<0.1	0.2	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

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Table 13. (S-10527) North Airstrip Apron 2007/08 results (cont.).

	PARAMETERS	SOIL			SOIL										
		UNITS	INDUSTRIAL GUIDELINES (Coarse)	DETECTION LIMIT	07NA0114 110 cm 7/27/2007	07NA0115 90 cm 7/27/2007	07NA0116 90 cm 7/27/2007	07NA0117 90 cm 7/27/2007	07NA0118 65 cm 7/27/2007	07NA0120 80 cm 7/27/2007	07NA0121 90 cm 7/27/2007	07NA0122 80 cm 7/27/2007	07NA0123 90 cm 7/27/2007	07NA0124 90 cm 7/27/2007	07NA0125 90 cm 7/27/2007
PAH	Naphthalene	mg/kg	22	0.008	2.5	<0.1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2-methylnaphthalene	mg/kg	---	0.005	5.2	<0.1	1.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
	1-methylnaphthalene	mg/kg	---	0.005	3	<0.1	2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	1,3-Dimethylnaphthalene	mg/kg	---	0.005	2.3	<0.1	3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthylene	mg/kg	---	0.004	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Acenaphthene	mg/kg	---	0.004	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	2,3,5-trimethylnaphthalene	mg/kg	---	0.007	0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluorene	mg/kg	---	0.007	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Phenanthrene	mg/kg	50	0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Anthracene	mg/kg	---	0.004	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Fluoranthene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Pyrene	mg/kg	100	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(c)Phenanthrene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)Anthracene	mg/kg	10	0.007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chrysene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	[illegible]	mg/kg	---	0.005	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(b,j,k)fluoranthene	mg/kg	10	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.7	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	3-methylcholanthrene	mg/kg	---	0.022	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Indeno(1,2,3-cd)pyrene	mg/kg	10	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenzo(a,h)anthracene	mg/kg	10	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Benzo(g,h,i)perylene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenzo (a,l) pyrene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
	Dibenzo (a,i) pyrene	mg/kg	---	0.007	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Dibenzo (a,h) pyrene	mg/kg	---	0.008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

NA Not available
Higher than the criteria

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SOIL Following the Canadian Soil Quality Guidelines for the Protection of Human and/or Environmental Health in Industrial land uses, of the CCME (2006)

Figure 9. (S-10527) Eureka North Airstrip Apron map.

4.7 CFS-EUREKA CONCLUSIONS

4.7.1 FCSAP Priority Sites

The high priority sites at CFS-Eureka were classified using the FCSAP Contaminated Site Classification provided by CFB-Trenton (Appendix B). The list of high priority areas is as follows:

Class 1 Sites / Action Required

- Sewage Lagoon
- North Airstrip Apron

4.7.2 Projected Work for the Next Sampling Campaign

The sites under examination were fully delineated during the 2006/07 and 2007/08 sampling campaigns and no further sampling is required until the implementation of a remediation plan at the indicated sites. When remediation is undertaken, BRI can provide a sampling plan to permit full closure of the contaminated sites. If additional sites at CFS-Eureka are identified which require delineation and characterization, BRI can provide a site by site sampling plan.

4.7.3 Conclusion

A summary of the site recommendations is presented in Table 14. Under the heading 'Closure', 'Direct' relates to sites which can be closed immediately whereas 'Manipulation' relates to site which can be closed after additional work to remove the contaminated soil is completed. 'DND Monitoring' refers to sites at which it is recommended that DND establish a long term monitoring program to ensure that no contamination migrates from the indicated sites.

A summary and breakdown of projected costs for future work is presented in Table 15. The final costs are calculated from as 'Characterization Costs' (part of an on-going monitoring program), 'Analyses & Materials' (site remediation costs) and 'Labour Costs' (estimated labour costs).

The figures presented do not include costs associated with the design, construction and materials associated with a contained biopile treatment area. This is the responsibility of DND.

Table 14. Summary of site recommendations

		Closure			Bioremediation			2008/09
PRIN	**Name**	**Direct**	**Manipulation**	**Delineation**	**In situ**	**Ex situ**	**DND Monitoring**	**Time (days)**
CFS - EUREKA								
S-150	Battery Dump	X					X	
S-10186	East Airstrip Landfill						X	
S-10187	Sewage Lagoon						X	
S-10190	Main Camp "The Fort"		X			X		1.5 days
S-10525	Barrel Dump	X					X	
S-10527	North Airstrip Apron		X			X		1.5 days
								TOTAL : 3 DAYS

NALYSES						OTHER WORK		LABOUR COSTS		
NITRITES $12	GLYCOL $60	CHARACTERISATION COSTS	FSCAP 2007/08	NUMBER EX SITU SAMPLES	ANALYSES & MATERIALS	NUMBER OF DELINEATION SAMPLES	SAMPLES TOTAL	STAFF TIME (hrs)	LABOUR COSTS ($110/hr)	TOTAL
0	0	$550	Score 26.3 / Class N	0	$0	10	10	58	$6,380	$6,930
0	0	$360	Score 34.0 / Class N	0	$0	4	4	46	$5,060	$5,420
1	0	$588	Score 83.7 / Class 1	0	$0	6	6	50	$5,500	$6,088
0	0	$0	Score 61.8 / Class 2	10	$1,000	0	10	58	$6,380	$7,380
0	0	$0	Score 30.8 / Class N	0	$0	0	0	0	$0	$0
0	0	$0	Score 80.5 / Class 1	12	$1,200	0	12	62	$6,820	$8,020
$12	$0									

6	0	$4,788
0	0	$1,650
0	0	$1,100

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